ABSTRACT OF THE INVENTION

5   The present invention efficiently stores a training sequence in a communications system, where the training sequence exhibits certain desirable characteristics when used by a peak to average power constrained modulation format. In one embodiment, the invention includes selecting a set of one or more original ordered sequences such that the set of ordered sequences has at least one desired property, creating a set of extended

10   sequences, each based on an original ordered sequence by beginning with an element of an original sequence, cyclically appending elements of the original sequence in order to obtain a desired extended sequence length, and modifying each extended sequence using a corresponding modifying sequence, such that a training sequence can be generated from any one of the modified extended sequences by beginning with any one element of any

15   one modified extended sequence and taking each element of the any one sequence in order to obtain the training sequence, the modifying sequence being selected so that the obtained training sequence when modulated by a selected modulation format has the at least one desired property of the corresponding original ordered sequence.